Important Advances in Clinical Medicine

Epitomes of Progress -- Anesthesiology

The Scientific Board of the California Medical Association presents the following inventory of items of progress in Anesthesiology. Each item, in the judgment of a panel of knowledgeable physicians, has recently become reasonably firmly established, both as to scientific fact and important clinical significance. The items are presented in simple epitome and an authoritative reference, both to the item itself and to the subject as a whole, is generally given for those who may be unfamiliar with a particular item. The purpose is to assist the busy practitioner, student, research worker or scholar to stay abreast of these items of progress in Anesthesiology which have recently achieved a substantial degree of authoritative acceptance, whether in his own field of special interest or another.

The items of progress listed below were selected by the Advisory Panel to the Section on Anesthesiology of the California Medical Association and the summaries were prepared under its direction.

Reprint requests to: Division of Scientific and Educational Activities, 693 Sutter Street, San Francisco, Ca. 94102

Muscle Relaxants

Recent experimental and clinical studies greatly increased our understanding of the influence of various factors on the pharmacological effects of muscle relaxants. This new information markedly influenced the choice and mode of administration of available muscle relaxants and the search for better ones.

It was observed that the prolonged administration of depolarizing relaxants may cause desensitization of the neuromuscular junction and difficulties in the postanesthetic reestablishment of neuromuscular transmission. It was also demonstrated that the decreased rate of metabolic transformation of succinylcholine by inherited abnormalities of plasma cholinesterase and other pathological changes (for example, liver disease) or the intentional or accidental administration of anticholinesterases may cause prolonged postoperative apnea. In infants, in severely burned or traumatized patients, and in the presence of certain neurological conditions (for example, paraplegia), succinylcholine may cause severe arrhythmias or even cardiac arrest.

Because of the possibility of such difficulties, there has been an increasing tendency to provide surgical relaxation with nondepolarizing relaxants. The presently available nondepolarizing agents [for example, d-tubocurarine chloride; gallamine triethiodide (Flaxedil®)], however, lack the controllability of succinylcholine and may also have undesired effects. Two other nondepolarizing agents, diallylnortoxiferine chloride (Alloferine®) and pancuronium bromide (Pavulon®),